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The Reliability and Validity of the Children's Conscientiousness And Procrastination Scale

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The Reliability and Validity of the Children's Conscientiousness And Procrastination Scale

BY

Nicole M. Osterman

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Abstract

The purpose of the present study was to further examine the reliability and validity of a self-report measure of procrastination and conscientiousness for elementary-aged children. The research participants were 120 male and female students in grades 3-5, drawn from two different schools. The Children's Conscientiousness and Procrastination Scales (CCAPS; Lay, Kovacs, & Danto, 1998) exhibited high internal consistencies. Procrastination and Conscientiousness were highly, negatively related, consistent with previous research with related measures and with adult samples. Teacher and parent ratings of students were moderately correlated with the student's self-reports, thereby providing support for the convergent validity of the self-report measure. Both procrastination and conscientiousness correlated with a self-report measure of anxiety (the Revised Children's Manifest Anxiety Scale; Reynolds & Richmond, 1978), specifically with social concerns and concentration subscales. Procrastination and conscientiousness related moderately to task orientation and avoidance orientation on a scale measuring achievement motivation (Goal Orientation Scales; Skaalvik, 1997). These correlations provide support for the divergent validity of the CCAPS. It was concluded that the CCAPS appears to be an adequate measure of procrastination and conscientiousness, although more research needs to be done to further establish the reliability and validity of the scale.

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The Reliability and Validity of the Children's Conscientiousness and Procrastination Scale

I'll do this later.

I work best under pressure!

I haven't started yet.

I'll finish my homework tomorrow...

For many, these statements are all too familiar. They are statements commonly made by someone who is procrastinating. Chronic procrastination is a problem that affects a large portion of the population. Ellis and Knaus (1977) estimated that 95% of college students procrastinate. Solomon and Rothblum (1984) found that nearly one fourth of the college students in their sample reported problems with procrastination on academic tasks, including writing term papers and studying for exams. Furthermore, this procrastinatory behavior may constitute a causal stress that contributes to maladaptive behavior patterns and psychological dysfunctions (Ferrari, Johnson, & McCown, 1995). According to Milgram (1991), procrastination reflects a dysfunction of behavior patterns that are essential for effectively dealing with the many tasks that accumulate daily on our desks and in our minds.

Definitions of Procrastination

There are a variety of definitions of procrastination, each with its own connotation. Almost all theorists agree that procrastination involves delaying completion

of a task that a person intends or wants to complete (e.g., Milgram, 1991; Senecal, Koestner, & Vallerand, 1995; Solomon and Rothblum,1984). In other words, procrastination involves knowing that one is supposed to perform an activity (such as completing a math school assignment) and perhaps even wanting to do so, yet failing to motivate oneself to perform the activity within the expected or desired time frame.

However, theorists differ on several aspects of the definition of procrastination. For example, some theorists (e.g., Ferrari, Johnson & McGown, 1995; Milgram, 1991; Rorer, 1983) stress that procrastination must include anxiety or emotional distress at a failure to complete the task. Others (e.g., Ferrari, 1994; McGown & Roberts, 1994, as cited in Ferrari et al., 1995) define procrastination as any task delay, regardless of the presence or absence of emotional distress. According to Ferrari (1994), procrastinating behavior may be in one's own self-interest and thus quite logical (e.g., postponing a task past an optimal starting time for completion when the task may be reassigned to a coworker if not already started).

Therefore, Ferrari (1994) has differentiated between functional and dysfunctional procrastination. For instance, avoidant behavior only becomes dysfunctional when the procrastinator is somehow penalized. McGown and Roberts (1994, as cited in Ferrari et al., 1995) also differentiate dysfunctional and functional procrastination. They argue that dysfunctional procrastination can be defined as delaying behavior past the optimal starting point for the completion of an important task with a high probability of needing completion, when the task does not have unreasonable demands or personal costs associated with attempted completion. On the other hand, functional procrastination is

defined as similar behavior elicited for actions with low probability of requiring completion or extremely high costs associated with completion at their optimal time.

Procrastination and Its Correlates

Chronic procrastination has been related to low self-confidence and self-esteem and to higher levels of depression, neurosis, forgetfulness, disorganization, noncompetitiveness, and lack of energy (Ferrari, 1991). Research has suggested that procrastination may serve as a risk factor for depression as well as low self-esteem (Ferrari, 1994). Procrastinators have more negative affect and less positive affect compared to non-procrastinators (Lay, 1992).

Procrastination is also related to anxiety. In one study by Tice and Baumesiter (1997), total stress and illness were higher for college student procrastinators than for non-procrastinators. Kay, Edwards, Parker, and Endler (1989) found a strong linear relationship between anxiety and chronic procrastination, with anxiety increasing among procrastinators during an exam period. Rothblum, Solomon, and Marakami (1986) report that test and trait anxiety are particularly problematic for female procrastinators, and that anxiety reduction is the key for reducing procrastination.

Procrastination has also been related to academic achievement in adult populations, particularly in college students (Broadus, 1983; Solomon & Rothblum, 1984). In a study by Solomon and Rothlbum (1984), procrastination results in detrimental academic performance with college students, including poor grades and course withdrawal. According to Covington (1992, as cited in Skaalvik, 1997), a high

motivation to avoid failure mixed with a low motivation to approach success results in procrastination and a reluctance to do academic work .

Recent research in motivation has identified two main goal orientations: task orientation and ego orientation, each with an approach tendency and an avoidance tendency (Skaalvik, 1997; Duda & Nichols, 1992; Elliot, 1997). In other words, self-enhancing ego orientation can be defined as ego- approach, self-defeating ego orientation as ego-avoidance, avoidance orientation as task-avoidance and task orientation as task-approach or mastery. Students with a strong self-enhancing ego orientation strive to demonstrate superior abilities as compared to others (a *performance-approach goal;* Elliot, 1997). On the other hand, the goal of students with self-defeating ego orientation is to avoid being negatively judged by others. This goal orientation is similar to a *performance-avoidance goal*, which focuses on the avoidance of incompetence (i.e., fear of failure) relative to others (Elliot, 1997).

If a student is task-oriented (approach) the main focus of attention is on the task rather than on some extrinsic reward. In other words, learning is meaningful and satisfying, mastery is dependent on effort, and perceptions of ability are self-referenced (Duda & Nicholls, 1992; Skaalvik, 1997). This orientation has also been called mastery (i.e., skill improvement, task mastery, working hard, and active engagement in the activity itself are fundamental; Duda, 1993). Students may also be avoidance-oriented in learning situations (Skaalvik, 1997). For instance, students may approach in order to avoid failure, or students may be focused on the avoidance of negative outcomes.

Empirical studies have shown that work avoidance is negatively correlated with a mastery orientation (e.g., Meece et al (1988) as cited in Skaalvik, 1997).

Procrastination seems to be related to task-related goals (i.e., task/mastery orientation and task avoidance orientation). However, procrastination does not seem to be related to ego-approach (i.e., the desire to appear competent to others) or ego-avoidance (i.e., avoidance of incompetence related to others) (Scher, Nelson & Osterman, 1999).

Procrastination and Conscientiousness

Conscientiousness is one of the "Big –Five" factors of personality. The Big-Five Factor Model is a system that defines the major dimensions of personality and provides an integrative descriptive model for personality research (John, Caspi, Robins, Moffit, & Stouthamer-Loeber, 1994). In addition to Conscientiousness, the big 5 includes : Extroversion, Agreeableness, Neuroticism, and Openness to Experience. Each of these Big-Five factors summarizes an area of individual differences that is broad and encompasses a large number of more specific personality characteristics. The Big Five dimensions of personality have been developed through factor analysis of a wide range of data sources, instruments, and samples. Moreover, all five factors have been shown to have discriminant and convergent validity across different instruments and observers, and to remain relatively stable throughout adulthood (John et al, 1994). The Big-Five have been extensively measured in adults, and are just beginning to be looked at in children and adolescents.

One of the Big-Five factors, Conscientiousness, which describes socially prescribed impulse control, as well as task and goal-directed behavior, has been linked to academic achievement among adults (Costa et al, 1991; Kovacs, 1996), adolescent school adjustment (Graziano & Ward, 1992), and male adolescent delinquency and adjustment (John et al, 1994). Furthermore, in a study by Schouwenberg and Lay (1995) examining the relationship between procrastination and the Big-Five, Conscientiousness was most overwhelmingly associated with procrastination (see also Johnson & Bloom, 1995). Due to these findings, Schouwenberg and Lay (1995) concluded that procrastination can be defined as a lack of conscientiousness.

Procrastination in Children

Although there has been extensive research done on the correlates of procrastination in adult populations, few studies (Lay, Kovacs & Danto, 1998; Morse, 1987) have examined procrastination in childhood populations. Thus, information on children and procrastination can only be generalized from adult populations (Kovacs, 1996). Morse (1987), based on previous research on procrastination with adults, identified seven possible causes of procrastination that seem especially related to elementary-aged children. They are low self-concept, perfectionism, fear of failure, fear of success, rebellion against authority, external locus of control, and lack of skill. This study, however, was not based on an adequate measure of procrastination in children. Procrastination was measured by recording students who turned in fewer than 75% of the assigned work during a two week period. This measure is questionable, mainly due to innumerable confounding factors that could affect this behavior (e.g., the difficulty level

of the assigned work, the possibility of learning disabilities among students, the student's motivation levels). Therefore, evidence on the validity of these seven "factors" of procrastination is lacking. Other research findings that may be generalized from adult populations to elementary-aged children include lower achievement motivation (e.g., Briordy, 1980; see Ferrari et al., 1995; Ferrari, 1995), and a lack of conscientiousness (Kovacs, 1996; Schouwenburg & Lay, 1995). It is important to reiterate that these research findings can only be generalized to children from adult populations. Thus, much research is needed to further examine the development of procrastination, as well as factors correlated with procrastination in childhood.

Measurement of Procrastination

Although there has been much research done on the correlates of procrastination, little is known about the causes. One reason so little is known is because of the very little attention being paid to developmental research on procrastination. This lack of attention is due in part to the fact that there is no adequate way of measuring procrastination in children. Measures developed for adult and adolescent populations are not appropriate for use with children. Furthermore, in the one study that did examine procrastination in children, the measures used had questionable reliability and validity. As discussed above, Morse (1987) conducted one of the only studies of procrastination among elementary school students. However, this measure was inadequate. As a result, it is quite possible that other factors beside procrastination affected the students' ability to complete the assignments, including varying skill levels, personal situations (i.e., death

in the family), etc. This suggests the need for a psychometrically sound measure of procrastination in children.

Being able to accurately measure and predict the tendency to procrastinate among elementary-aged students may be useful in (a) helping students who have a tendency to procrastinate overcome that tendency, (b) providing researchers with a measure to assess and potentially control differences that may influence effective interventions (e.g., counseling to improve self-esteem and reduce anxiety, techniques within the classroom and at home to increase student achievement motivation), and (c) studying the development of procrastination. By identifying procrastinating children at an early age, future problems may be prevented. One self report measure of procrastination developed for children is the Childhood Conscientiousness and Procrastination Scale (CCAPS; Lay, Kovacs, & Danto, 1998). CCAPS was developed with the purpose of creating a measure of procrastination and conscientiousness appropriate for elementary school-aged children.

Procrastination and Conscientiousness Scales

The procrastination subscale of the CCAPS consists of 18 items which were adapted from a measure of trait procrastination used with adults (Lay, 1986), and from an unpublished test by Tasios (1992) for children aged 8 to eleven (Kovacs, 1996). The subscale includes items assessing procrastination in various domains (e.g., home, school). The format of the questionnaire was based on the Self-Perception Profile created by Harter (1993), which was used in studying self-esteem in children ranging from age eight to thirteen. The conscientiousness subscale was based upon the Revised NEO Personality Inventory (Costa & McCRae, 1992) and the Big Five Scale for the California

Child Q-Set (John et al., 1994). It consists of 23 items that tap into six facets of conscientiousness identified by Costa & McCrae (1992).

Lay, Kovacs and Danto (1998) administered the CCAPS orally to 145 public school children, ranging from ages 8 to 11. The two subscales were internally consistent (procrastination α = .83; conscientiousness α = .82). The correlation between procrastination and conscientiousness was high (r = -.81). Teacher's ratings of their students were slightly to moderately related to the scale scores obtained by the students (procrastination r = .26; conscientiousness r = .31). In a second study, 280 children in grades 3-5 completed the CCAPS. Cronbach's alpha for the 14 item procrastination scale across all students was .84, and for the conscientiousness scale, the alpha was .86. The correlation coefficient between procrastination and conscientiousness was -.81. Finally, the correlation coefficients between the teacher's ratings and procrastination and conscientiousness were .27 and .33, respectively.

Research conducted by Lay, Kovacs and Danto (1998) are both promising beginnings in the development of an adequate measure of procrastination in elementary-aged populations. Nevertheless, there clearly needs to be more work on assessing the psychometrics of the CCAPS. For instance, the CCAPS has not been correlated with measures of anxiety and achievement motivation, both of which have been found to relate to procrastination. Furthermore, the questionnaire has not been correlated with parent ratings, which is important because the scale measures procrastination within the home environment, as well as the school environment.

The purpose of the present study is to further investigate the reliability and validity of the Children's Conscientiousness and Procrastination Scale. To further establish the convergent validity of this self-reported measure of procrastination, it was correlated with teacher and parent ratings. To further establish discriminant validity, it was also correlated with measures of anxiety and achievement motivation, which both have been found to relate to procrastination.

Method

Participants

The participants in the study were third, fourth, and fifth grade students at two elementary schools located in Charleston, Illinois, a small midwestern city. All students who received parental consent participated. Parent questionnaires were sent home with the consent forms. The total sample included 120 children ranging in age from nine to twelve years, and the majority of the sample was caucasian.

Procedure

Initial Testing. Students whose parents consented to their participation were removed from their regular classroom and were tested in another room located in the school. (In one classroom, where the majority of the students participated, testing was completed in the regular classroom.) The CCAPS, the Revised Children's Manifest Anxiety Scale (RCMAS), and Goal Orientation Scales were group administered, and the researcher was present to explain each questionnaire and to answer any questions that followed. Each session involved groups of about 10 to 40 students. Both the CCAPS and the Goal Orientation Scales contained sample items with extraneous content. These

items were simple and concrete (e.g., "Some kids watch cartoons on Saturday mornings" BUT "Other kids don't watch cartoons on Saturday mornings"; "I like playing at recess *true, mostly true, false, mostly false*"). When introducing the questionnaires to the students, the researcher read the sample statements aloud and asked for volunteers to answer the questions. The researcher then made sure that the students understood how to complete each questionnaire. Most of the students completed the three scales in approximately 30 to 45 minutes.

Teacher Testing. The teachers were given a questionnaire (see below) for each participating student. Every teacher completed a questionnaire for the students in their classroom who participated in the study.

Parent Testing. A parent questionnaire (see below) was sent home with a copy of the consent form, and a short letter explaining the study. The consenting parent/parents completed one questionnaire for their child and sent it back to school with the consent form.

Student Measures

Children's Conscientiousness and Procrastination Scale (CCAPS). The CCAPS is a 38 item questionnaire with two subscales, one measuring procrastination and one measuring conscientiousness. The procrastination scale consists of 13 statements designed to measure the tendency to put off tasks in a variety of domains pertaining to school and home. For example, one item reads, "Some kids almost always finish their work before they have to BUT other kids almost always finish their work at the last minute." The child is first asked to decide which kind of kid is most like him or her. The

child is then asked whether this statement is only sort of true or really true for him or her. The response format is adapted from the Perceived Competence Scale for Children (Harter, 1981).

The conscientiousness scale consists of 25 items designed to measure the six facets of conscientiousness: competence, order, dutifulness, achievement striving, self-discipline, and deliberation (Costa & McRae, 1991). Responses are given on the same format as the procrastination scale. An example of a competence statement is, "Some kids feel that they cannot do many things well BUT other kids feel that they can do many things well." An example of an order statement is, "Some kids like to keep their things neat BUT other kids keep their things messy." An example of a dutifulness statement is, "Some kids are good listeners BUT other kids aren't good listeners." An example of an achievement statement is, "Some kids feel they should always be doing their work BUT other kids only do what they have to." An example of a self-discipline statement is, " Some kids always finish what they start BUT other kids don't finish what they start." An example of a statement representing deliberation is, "Some kids do things first and think about it later BUT other kids think first before they do things." A copy of the complete questionnaire is included in the Appendix (see also Table 1).

Revised Children's Manifest Anxiety Scale (RCMAS). The RCMAS is a 47-item self-report scale designed to measure anxiety developed in 1978 by Reynolds and Richmond. Respondents indicate either "yes" or "no" as to whether each statement describes them. For example, one statement reads, "I get nervous when things do not go the right way for me." In addition to a total anxiety score, four subscale scores can be

computed: Physiological, Worry/Oversensitivity, Social Concerns/Concentration, and Lie. The Physiological Anxiety subscale is an index of the child's expression of physical manifestations of anxiety, with high scores suggesting the child experiences certain types of physiological responses to anxiety. The second subscale, Worry/Oversensitivity, contains items suggesting the child is afraid, nervous, or oversensitive to environmental pressures. The Social Concerns/Concentration subscale deals with concerns about self and how one appears to other people, and also looks at difficulty in concentrating. Children scoring high on this subscale may feel anxiety in that they are unable to live up to expectations of other important individuals in their lives. Finally, a high score on the Lie scale may suggest an inaccurate self-report. In the standardization sample, which consisted of 4,972 children between the ages of 6 and 19 years, the reliability coefficients ranged from .79 to .85. The RCMAS correlated highly (.85) with the Trait scale of the State-Trait Anxiety Inventory for Children (Gresham, 1987).

Goal Orientation Scales. This scale was designed by Skaalvik (1997) in order to measure aspects of achievement motivation. It is made up of 22 items measuring goal orientations. Four goal orientations (task orientation, self-enhancing ego orientation, self-defeating ego orientation, and avoidance orientation) are assessed: The task and avoidance scales are task-approach and task-avoidance, respectively. The self-enhancing and self-defeating scales are ego-approach and ego-avoidance. In other words, there is a two-by-two structure (Task/Ego X Approach/Avoidance) to the four orientations.

Task orientation refers to the focus of attention remaining on the task as opposed to some extrinsic award (Nicholls, 1983 as cited in Skaalvik, 1997). On the other hand,

the goal of ego-oriented students is to establish the superiority of one's ability as compared to others (Ames & Archer, 1988; Duda, 1993; Duda & Nicholls, 1992; Nicholls, Cheung, Lauer, & Patashnick, 1989, as cited in Skaalvik, 1997). Specifically, students with strong self-enhancing ego orientation want to demonstrate superior abilities as compared to others, whereas students with strong self-defeating ego orientation wants to avoid being negatively judged by others. According to Skaalvik (1997), several researchers have proposed that students may also be avoidance-oriented in learning situations. In other words, a student may be approach oriented in order to avoid failure and may focus on the avoidance of negative outcomes (Elliot, 1997). Thus, avoidance orientation has been proposed as a distinct goal orientation. As mentioned earlier, factor analyses show that avoidance orientation can be separated from both task orientation and self-enhancing ego orientation (Duda & Nicholls, 1992). Responses are given on a four point scale: *true, mostly true, mostly false,* and *false*. Examples of statements include: "I like when we learn interesting things at school" (task orientation); "I try to get better grades than other students in my school" (self-enhancing ego orientation); "I try not to be one of the worst students at school" (self-defeating ego orientation); and "At school I try not to answer any hard questions" (avoidance orientation). Minor modifications were made to Skaalvik's translation to make the items more readable for elementary American students. A copy of this questionnaire is in the Appendix.

Teacher and Parent Measures

The students' teachers and their parents rated the participants on how much they procrastinate and on how conscientious they are. These ratings were used to examine the

convergent validity of the procrastination and conscientiousness scales. The scale was developed by Lay, Kovacs, and Danto (1998), and it consisted of 1 single item measure of procrastination and 1 item measuring each facet of conscientiousness. An example of a statement measuring achievement striving is, "the student (child) is ambitious and determined." A four point scale was used ranging from "very true of student (child)" , (1) "mostly true of student (child), (2) "a little true of student (child), (3) and "not at all true of student (child)" (4). Copies of each questionnaire (teacher and parent) are in the Appendix.

Results

Reliability of the Children's Conscientiousness and Procrastination Scale (CCAPS)

Reliability of Procrastination. The internal consistency reliability of the procrastination inventory was high (α =.73). All twelve of the procrastination items exhibited satisfactory item-total scale correlation coefficients (see Table 1).

Reliability of Conscientiousness. The reliability for the overall conscientiousness subscale was high (α =.74). In contrast, the internal consistencies of the six facets (competence, order, achievement striving, self-discipline, deliberation, and dutifulness) were only moderate to low (competence α = .32; order α= .46; achievement striving α = .38; self-discipline α = .21; deliberation α = .24; dutifulness α = .37). Most conscientiousness items exhibited satisfactory item-total scale correlation coefficients, with the exception of five specific items (see Table 2).

Table 1

Procrastination Scale

Item			Item-to-Total Correlation
Some kids do their homework as soon as they can	BUT	Other kids do their homework at the last minute	.37
Some kids almost always get out of bed late	BUT	Other kids almost always get out of bed on time	.28
Some kids always clean their room when they are supposed to	BUT	Other kids never clean their room when they are supposed to	.34
Some kids waste time before they do their classwork	BUT	Other kids do their classwork right away	.33
Some kids tell their parents right right away about special events at school	BUT	Other kids tell their parents at the last minute	.35
Some kids almost always finish their work at the last minute	BUT	Other kids almost always finish their work before they have to	.45

Table 1 cont.

Some kids are almost always ready on time	BUT	Other kids are almost never ready on time	.56
Some kids like to do things they find hard right away	BUT	Other kids like to leave things they find hard for later	.22
Some kids almost always get to school before the bell rings	BUT	Other kids almost always get to school after the bell rings	.26
Some kids do everything right away	BUT	Other kids wait until later	.42
Some kids start doing classwork right away	BUT	Other kids wait before they start doing their classwork	.45
Some kids waste time doing other things when they have something to finish	BUT	Other kids never waste time doing other things when they have something to finish	.34

Table 2

Conscientiousness Scale

Item			Item –to-Total Correlation
(D) Some kids walk through the whole store before they chose a toy or game they would like	BUT	Other kids choose the first toy or game they see	.16
(C) Some kids feel they cannot do many things well	BUT	Other kids feel that they can do many things well	.19
(O) Some kids like to keep their things neat	BUT	Other kids keep their things messy	.30
(A) Some kids almost always try to do their best	BUT	Other kids don't always try to do their best	.37
(S) Some kids always finish what they start	BUT	Other kids don't finish what they start	.30
(C) Some kids almost always do a good job	BUT	Other kids don't always do a good job	.32
(Du) Some kids are good listeners	BUT	Other kids aren't good listeners	.42

Table 2 cont.

Item			Item-to-Total Correlation
(A) Some kids don't care if they finish their work	BUT	Other kids do care if they finish their work	.12
(D) Some kids almost always keep their promises	BUT	Other kids don't always keep their promises	.21
(A) Some kids don't always feel like trying to do a good job	BUT	Other kids always feel like trying to do a good job	.16
(A) Some kids always need to do their best	BUT	Other kids don't always need to do their best	.19
(O) Some kids always lose their things	BUT	Other kids never lose their things	.30
(D) Some kids do things first and think about it later	BUT	Other kids think first before they do things	.22
(A) Some kids like to waste time	BUT	Other kids never waste time	.41
(C) Some kids always make good choices	BUT	Other kids don't always make good choices	.23
(S) Some kids have a hard time doing the things they should	BUT	Other kids always do what they should	.27

Table 2 cont.

Item			Item-to-Total Correlation
(D) Some kids read the questions on a test carefully before they begin to answer	BUT	Other kids do not read the questions on a test carefully before they begin to answer	.37
(D) Some kids chose what they want to wear the night before	BUT	Other kids just put on the first thing they find in the morning	.12
(Du) Some kids who are just a little sick will try to miss school	BUT	Other kids have to be really sick to miss school	.28
(O) Some kids always know where they put their things	BUT	Other kids are always looking for their things	.23
(C) Some kids know how to act in any place	BUT	Other kids do not know how to act in a lot of places	.28
(O) Some kids do not always do neat work	BUT	Other kids always do neat work	.23
(S) Some kids give up if something is too hard and start something new	BUT	Other kids keep trying even if something is really hard	.25
(D) Some kids think before they put up their hand to answer a question	BUT	Other kids just put up their hand even before they have an answer	.40

Table 2 cont.

Item			Item-to-Total Correlation
(Du) Some kids always take privileges like being a special helper very seriously	BUT	Other kids don't always take privileges like being a special helper very seriously	.32

Note. Letters enclosed in parentheses indicate facets of conscientiousness (D = deliberation, C = competence, O = order, A = achievement striving, S = self-discipline, Du = dutifulness)

Validity of the Children's Conscientiousness and Procrastination Scale

Multi-Trait/ Multi-Method Analysis. Pearson Product-MomentCorrelation Coefficients were computed to determine the relation between children's self-ratings (CCAPS scores) on procrastination and conscientiousness and parent and teacher ratings of procrastination and conscientiousness. The above mentioned correlations are presented in a multi-trait/multi-method matrix (see Table 3). As shown, there was a high negative correlation between self-ratings of trait procrastination and conscientiousness. Relations between parent ratings and self-report ratings on procrastination and conscientiousness were slight to moderate. Likewise, teacher ratings and self-report ratings on procrastination and conscientiousness were moderately correlated. The relation between parent and teacher ratings on procrastination was moderate, while on conscientiousness the correlation was somewhat high.

Correlations between the overall CCAPS and parent and teacher ratings may be lower because the some items apply only to school settings, whereas other items apply only to home situations (e.g., "some kids waste time before they do their classwork" versus "some kids almost always get out of bed late"). Therefore, the CCAPS was divided into a "school" scale (using items 10, 26, 27, 33, 34, 37, & 38) and a "home" scale (using items 1, 5, 7, 13, 15, 28, 29, & 31). The correlations between these two "subsclaes" of the CCAPS and parent and teacher ratings are listed in Table 4. Due to the low reliability of the school and home "subscales" of the CCAPS, the correlations were adjusted using the dissattenuation formula (Schmidt & Hunter, 1996).

Table 3

Multi-Trait/Multi-Method Matrix

		Students		Parents		Teachers	
		Procras	Cons.	Procras.	Cons.	Procras.	Cons.
Students	Procras.	--	-.68**	.35**	-.27*	.44**	-.43**
	Cons.		--	- .37**	.30*	-.38**	.46**
Parents	Procras.			--	-.60**	.42**	-.53**
	Cons.				--	-.50**	.64**
Teachers	Procras.					--	-.82**
	Cons.						--

Note. Procras. = procrastination; Cons. = conscientiousness; correlations between student and parent/teacher ratings were changed from positive to negative and vice versa, as parent/teacher scales were reverse scored (i.e., a score of 1=high procrastination; a score of 1=high conscientiousness) *$p < .01$. **$p < .001$

Table 4

Pearson Correlation Coefficients Between CCAPS Items Relating to Only Home or School With Teacher and Parent Ratings

	TCons	PCons	TProc	PProc	HomeProc	HomeCons	SchlProc	SchlCons
TCons	[.94]	.64	-.82	-.53	-.08	.02	-.41	.31
Pcons	.64	[.83]	-.50	-.59	-.11	.01	-.21	.16
Tproc	-.81	-.50	[-]*	.43	.12	-.09	.35	-.27
Pproc	-.53	-.59	.43	[-]*	.22	-.06	.35	-.18
HomeProc	-.14	-.20	.20	.37	[.36]	-.27	.37	-.30
HomeCons	.03	.02	-.14	-.09	.27	[.42]	-.23	.31
SchlProc	-.70	-.38	.58	.58	.37	-.23	[.36]	-.23
SchlCons	.49	.27	-.42	-.28	-.30	.31	-.47	[.42]

Note. Original correlations are above the diagonal. Corrected correlations are below the diagonal. The reliabilities of each scale are in brackets. * The dashes indicate single item measures for which reliability could not be estimated. For the purposes of the correction formula, the reliabilities for single item measures were assumed to equal one.

Table 5

Pearson Correlation Coefficients Between the CCAPS and Revised Children's Manifest Anxiety Scale (RCMAS)

	SProc	SCons	TAnx	PAnx	Worry	Concerns	Lie
Sproc	--	-.68**	.32**	.14	.12	.28*	-.11
Scons		--	-.37**	-.12	-.20*	-.35**	.21*
Tanx			--	.82**	.89**	.83**	-.10
Panx				--	.94**	.59**	.13
Worry					--	.65**	-.04
Concerns						--	-.09

Note. Abbreviations are as follows: SProc = student ratings of procrastination; SCons = student ratings of conscientiousness; TAnx = Total Anxiety; PAnx = Physiological ; Worry = Worry/Oversensitivity; Concerns = Social Concerns/Concentration.

* $p < .05$. ** $p < .0001$.

ratings of procrastination and teacher ratings of procrastination) was assumed to equal one.

Relation Between CCAPS and The Revised Children's Manifest Anxiety Scale. The RCMAS has a total score (Total Anxiety) and four sub-scores: (Physiological, Worry/Oversensitivity, Social Concerns/Concentration, and a Lie score), both procrastination and conscientiousness were correlated with two : Total anxiety and Social Concerns/Concentration (see Table 5). Conscientiousness was also correlated with the Worry and Lie subscales. The correlations were moderate.

Relation Between CCAPS and Goal Orientation Scale. Pearson Correlation Coefficients were computed to determine the relation between procrastination and conscientiousness and four goal orientations (task orientation, self-enhancing ego orientation, self-defeating ego orientation, and avoidance orientation) which make up the Goal Orientation Scales (see Table 6). When examining the relation between procrastination and the four goal orientations, correlations were moderate to low, with higher correlations for task-based goal orientations, and no correlation for ego-based orientations. It should be noted that there was no correlation expected between the CCAPS and self-enhancing ego orientation and self-defeating ego orientation, as the two seem to be unrelated to procrastination and conscientiousness. There is one relation worth mentioning, as it promotes the validity of the CCAPS. There was no correlation ($r = -.03$) between avoidance orientation and task orientation. Thus, this is evidence suggesting that the CCAPS is independently predicting both avoidance orientation and task orientation.

Table 6

Pearson Correlation Coefficients for the CCAPS and Goal Orientation Scales

	Mean	Std Dev	SProc	SCons	Task	Selfen	Selfdx	Avoid
Sproc	25.3	6.1		-.68***	.40***	-.02	-.03	-.33**
Scons	78.9	8.8			-.49***	-.02	-.02	.35**
Task	10.0	3.3				.24*	.20*	-.03
Selfen	11.0	3.8					.23*	.19*
Selfdx	13.7	4.3						.10
Avoid	9.0	2.7						--

Note. Abbreviations are as follows: Task = Task orientation; Selfen = Self-enhancing ego orientation; Selfdx = Self-defeating ego orientation; Avoid = Avoidance orientation; SProc = student ratings of procrastination; = SCons = student ratings of conscientiousness. * $p < .05$. ** $p < .001$. ***$p<.0001$

Discussion

The present study examined the reliability and validity of the Children's Conscientiousness and Procrastination Scale (CCAPS). The convergent validity of the CCAPS was supported by teacher and parent ratings of the children's procrastination and conscientiousness in relation to the CCAPS. Although these correlations were moderate to low, they still support the validity of the CCAPS. In fact, these low correlations should have possibly been anticipated. According to Costa & McCrae (1992) (as cited by Lay, Kovacs, & Danto (1998), self-report measures tend to be only slightly related to observer ratings. More specifically, a low correspondence between teacher ratings and children's self-reports (Ledingham, Younger, Schwartzman & Bergeron, 1982) and between parent's ratings and their child's self-reports (Schnieder & Byrne, 1989) have been discovered in previous research. When items applying only to school and items applying only to home on the CCAPS were separated, it appeared that the school items measuring procrastination correlated negatively with the conscientiousness items on the teacher questionnaire. Furthermore, school items measuring procrastination also correlated with teacher and parent ratings of procrastination. The school items measuring conscientiousness correlated positively with the conscientiousness items on the teacher questionnaire, and negatively with the teacher ratings of procrastination. Thus, the parent and teacher ratings appear to be a more sensitive measure of both procrastination and conscientiousness when the CCAPS items relating only to school are separated from the items relating only to home situations.

When comparing the teacher and parent ratings, a high correlation was found between procrastination and conscientiousness on parent ratings of their child. Similarly, an even higher correlation was found between procrastination and conscientiousness when teachers rated their students. Although the correlation between teacher and parent ratings of procrastination was moderate, a higher correlation was found in ratings of conscientiousness. This suggests that the CCAPS is a sensitive measure of children who tend to procrastinate, and an even more sensitive measure of children who are conscientious. This finding also suggests that children who procrastinate in school may also procrastinate at home, and that children who are conscientious at school are also conscientious at home.

The discriminant validity of the CCAPS was supported by measures of anxiety (RCMAS) and achievement motivation (Goal Orientation Scales). Procrastination has been found to be strongly related to anxiety in adult populations (Lay, Edwards, Parker & Endler, 1989; Rothblum, Solomon, & Markami, 1986). With the present study, moderate correlations were found between procrastination and one area of anxiety measured by the RCMAS: Social Concerns/Concentration. This finding supports previous research on the relationship between anxiety and procrastination, and is also support for the validity of the CCAPS. However, correlations with the other two subscales of the RCMAS (Physiological and Worry/Oversensitivity) were low. There may be a number of reasons for this finding.

First, it is possible that children are less likely to rate themselves high in areas of physical anxiety and oversensitivity, as the means of both scales were lower than the

mean of the Total anxiety scale. Second, children who procrastinate may not have developed the ability to identify the physical aspects of anxiety. Third, it may be that anxiety related to procrastination simply does not manifest until later in life. Finally, it may be that procrastination is only associated with one aspect of anxiety. For instance, in the study by Kay, Edwards, Parker and Endler (1989), procrastination was found to relate more with state anxiety as opposed to trait anxiety. Whatever the reasons, these findings support the need for further research on the development of procrastination and its relation to anxiety.

Another measure used to support the discriminant validity of the CCAPS was the Goal Orientation Scales. These scales purport to measure four types of goal orientations : task orientation, self-enhancing ego orientation, self-defeating ego orientation, and avoidance orientation. These scales assess achievement motivation, which has also been shown to be related to procrastination in adults (Broadus, 1983). According to Solomon and Rothblum (1984), procrastination results in detrimental academic performance with college students, which is likely related to a lack of achievement motivation. There were no correlations found between the CCAPS and self-enhancing ego orientation and self-defeating ego orientation. The present study was more interested in the relation between the CCAPS and task orientation and avoidance orientation. Both seem to be more related to procrastination and conscientiousness. Moderate correlations were found between procrastination and conscientiousness and task orientation and avoidance orientation. This finding supports the validity of the CCAPS in two ways. First, it shows that the

CCAPS is related to measures of achievement motivation. Second, there is no correlation between task orientation and avoidance orientation, which shows that the CCAPS is independently predicting both orientations. Third, procrastination correlated highly with task-based orientations, but not with ego-based orientations. One possible reason for this is that students may be more likely to procrastinate when their focus is on a task rather than on ego-based, extrinsic rewards (e.g., feeling superior to others). These extrinsic rewards may be more motivating to students, thus making them less likely to procrastinate. Overall, these findings are good evidence for the validity of the CCAPS.

Results support past research regarding the reliability of both the procrastination and conscientiousness scales of the CCAPS, with both inventories being internally consistent and highly related to one another (Kovacs, 1996; Lay, Kovacs & Danto, 1997). Consistent with results with adult populations (Johnson & Bloom, 1995; Schouwenburg & Lay, 1995), procrastination was highly negatively correlated with conscientiousness. This suggests that with younger children as well as with adults, the predisposition to engage in procrastinating behaviors may be linked to a lack of conscientiousness.

The CCAPS appears to be a good measure of both procrastination and conscientiousness. However, more research needs to be done in order to further establish the reliability and validity of the scale. Specifically, in regards to reliability, test-retest reliability (stability) research needs to be conducted in order to determine the stability of the CCAPS over time. The validity of the CCAPS also needs to be examined further. First, additional studies looking at the relation between anxiety, achievement motivation,

and procrastination would add support for the discriminant validity of the CCAPS. Further studies utilizing parent and teacher ratings would also prove beneficial. Finally, the CCAPS has not been validated with an actual measure of procrastinating behavior, or a behavioral criterion. One possible way this can be accomplished is by using a measure of behavioral delay (i.e., in completing a school assignment). In order to minimize confounding factors, all students would be given a grade-level appropriate worksheet to complete (e.g., a math worksheet with 20 problems). The classroom teachers would then be instructed to assign the worksheet, while telling the students they could choose to work on it during the next fifteen minutes, or they could take it home for homework. The teacher would then collect the assignment after the fifteen minute period, and the students would then be informed that this assignment would not affect their grade. The number of problems attempted would serve as the measure of behavioral delay. Such research would provide insight into the observable behaviors exhibited by children that characterize the term "procrastination" and would also provide support for or evidence against the validity of the CCAPS.

The present study examined the reliability and validity of the CCAPS, and from these findings, the CCAPS appears to be a psychometrically sound measure of both procrastination and conscientiousness. This self-report measure designed to measure both procrastination and conscientiousness will have many advantages in future research, as well as in practical applications. By accurately measuring the tendency to procrastinate among elementary-aged students, research can examine the possible causes of the behavior. In addition, the CCAPS would assist in studying the development of

procrastination and conscientiousness. On the practical side, many young students will benefit from an accurate measure of procrastination. By identifying these students early, many future problems may be prevented. For instance, by effectively identifying students who procrastinate, these students may benefit from interventions, which can be applied both in the classroom and at home. These interventions may include anxiety reduction techniques, social skills training, effective coping skills and task-completion strategies. The classroom teacher may also assist the identified students with organizational skills (e.g., writing all assignments in an assignment book), and may provide positive reinforcements for students when they complete assignments early or on time. At home, parents can be encouraged to also use positive reinforcement for their child in regards to both schoolwork and responsibilities at home. By implementing a combination of strategies, a child may eventually reduce their dilatory behaviors and be able to overcome the tendency to procrastinate.

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SAMPLE QUESTIONNAIRE

	Really like Me	Kind of like Me				Really like Me	Kind of like Me
1.	☐	☐	Some kids watch cartoons on Saturday mornings	BUT	Other kids don't watch cartoons on Saturday mornings	☐	☐
2.	☐	☐	Some kids eat lunch at school	BUT	Other kids don't eat lunch at school	☐	☐
3.	☐	☐	Some kids worry about spelling words correctly	BUT	Other kids don't worry about spelling words correctly	☐	☐
4.	☐	☐	Some kids will ask the teacher if they don't understand something	BUT	Other kids won't ask the teacher if they do not understand something	☐	☐

1.	☐	☐	Some kids walk through the whole store before they chose a toy or game they would like	BUT	Other kids choose the first toy or game that they see	☐	☐
2.	☐	☐	Some kids do their homework as soon as they can	BUT	Other kids do their homework at the last minute	☐	☐
3.	☐	☐	Some kids feel that they cannot do many things well	BUT	Other kids feel that they can do many things well	☐	☐
4.	☐	☐	Some kids like to keep their things neat	BUT	Other kids keep their things messy	☐	☐
5.	☐	☐	Some kids almost always get out of bed late	BUT	Other kids almost always get out of bed on time	☐	☐
6.	☐	☐	Some kids almost always try to do their best	BUT	Other kids don't always try to do their best	☐	☐
7.	☐	☐	Some kids always clean their room when they are supposed to	BUT	Other kids never clean their room when they are supposed to	☐	☐
8.	☐	☐	Some kids always finish what they start	BUT	Other kids don't finish what they start	☐	☐
9.	☐	☐	Some kids almost always do a good job	BUT	Other kids don't always do a good job	☐	☐
10.	☐	☐	Some kids waste time before they do their classwork	BUT	Other kids do their classwork right away	☐	☐
11.	☐	☐	Some kids are good listeners	BUT	Other kids aren't good listeners	☐	☐

12.	☐	☐	Some kids don't care if they finish their work	BUT	Other kids do care if they finish their work	☐	☐
13	☐	☐	Some kids always finish everything they have to before they go to sleep	BUT	Other kids seldom finish what they have to do before they go to sleep	☐	☐
14.	☐	☐	Some kids almost always keep their promises	BUT	Other kids don't always keep their promises	☐	☐
15.	☐	☐	Some kids tell their parents right away about special events at school	BUT	Other kids tell their parents at the last minute about special events at school	☐	☐
16.	☐	☐	Some kids don't always feel like trying to do a good job	BUT	Other kids always feel like trying to do a good job	☐	☐
17.	☐	☐	Some kids almost always finish their work at the last minute	BUT	Other kids almost always finish their work before they have to	☐	☐
18.	☐	☐	Some kids are almost always ready on time	BUT	Other kids are almost never ready on time	☐	☐
19.	☐	☐	Some kids always need to do their best	BUT	Other kids don't always need to do their best	☐	☐
20.	☐	☐	Some kids like to do things they find hard right away	BUT	Other kids like to leave things they find hard for later	☐	☐
21.	☐	☐	Some kids always lose their things	BUT	Other kids never lose their things	☐	☐
22.	☐	☐	Some kids do things first and think about it later	BUT	Other kids think first before they do things	☐	☐

23.	☐	☐	Some kids like to waste time	BUT	Other kids never waste time	☐	☐
24.	☐	☐	Some kids always make good choices	BUT	Other kids don't always make good choices	☐	☐
25.	☐	☐	Some kids have a hard time doing the things they should	BUT	Other kids always do what they should	☐	☐
26.	☐	☐	Some kids read the questions on a test carefully before they begin to answer	BUT	Other kids do not read the questions on a test carefully before they begin to answer	☐	☐
27.	☐	☐	Some kids almost always get to school before the bell rings	BUT	Other kids almost always get to school after the bell rings	☐	☐
28.	☐	☐	Some kids choose what they want to wear the night before	BUT	Other kids just put on the first thing they find in the morning	☐	☐
29.	☐	☐	Some kids who are just a little sick will try to miss school	BUT	Other kids have to be really sick to miss school	☐	☐
30.	☐	☐	Some kids always know where they put their things	BUT	Other kids are always looking for their things	☐	☐
31.	☐	☐	Some kids know how to act in any place	BUT	Other kids do not know how to act in a lot of places	☐	☐
32.	☐	☐	Some kids do everything right away	BUT	Other kids wait until later	☐	☐
33.	☐	☐	Some kids do not always do neat work	BUT	Other kids always do neat work	☐	☐

34.	☐	☐	Some kids start doing classwork right away	BUT	Other kids wait before they start doing their classwork	☐	☐
35.	☐	☐	Some kids give up if something is too hard and start something new	BUT	Other kids keep trying even if something is really hard	☐	☐
36.	☐	☐	Some kids waste time doing other things when they have something to finish	BUT	Other kids never waste time doing other things when they have something to finish	☐	☐
37.	☐	☐	Some kids think before they put up their hand to answer a question	BUT	Other kids just put up their hand even before they have an answer	☐	☐
38.	☐	☐	Some kids always take privileges like being a special helper very seriously	BUT	Other kids don't always take privileges like being a special helper very seriously	☐	☐

THE END

THANK YOU!

Goal Orientation Scales

	True	*Mostly True*	*False*	*Mostly False*
A. I like playing at recess.	1	2	3	4
B. I like when we play kickball in P.E.	1	2	3	4
1. It is important for me to learn new things in school.	1	2	3	4
2. I am concerned about getting better at things I do in school.	1	2	3	4
3. It is important for me to learn to solve the problems we are working on in school.	1	2	3	4
4. I like to work hard at solving the problems we do in school.	1	2	3	4
5. What I learn at school makes me want to learn more.	1	2	3	4
6. I like when we learn about interesting thingsat school.	1	2	3	4
7. I feel successful when I do better than the other kids in school.	1	2	3	4
8. I try to get better gradesthan other students in my school.	1	2	3	4
9. At school it is important for me to do things that other students can't do.	1	2	3	4
10. I always try to do better than other students in my class.	1	2	3	4
11. I answer questions in class to show that I know more than the other students.	1	2	3	4
12. When I answer a question in class, I always wonder what the other students are thinking about me.	1	2	3	4
13. When I am working on the blackboard I worry about what my classmates think about me.	1	2	3	4
14. At school I worry about making a fool of myself.	1	2	3	4

15. When I give a wrong answer in class I am most worried about what my classmates think about me.	1	2	3	4
16. The worst thing about making mistakes at school is that other students may notice.	1	2	3	4
17. It is important for me to try not to look stupid at school.	1	2	3	4
18. I try not to be one of the worst students in school.	1	2	3	4
19. At school I hope that we do not get any homework.	1	2	3	4
20. I like school the best when there is no hard work.	1	2	3	4
21. I like to do as little work as I can in school.	1	2	3	4
22. At school I try not to answer any hard questions.	1	2	3	4

Parent Questionnaire

Please circle the answer that best describes your child.

1. My child procrastinates (puts off doing things).

very true of my child	mostly true of my child	a little true of my child	not at all true of my child

2. My child is efficient and self-confident.

very true of my child	mostly true of my child	a little true of my child	not at all true of my child

3. My child is organized and methodical.

very true of my child	mostly true of my child	a little true of my child	not at all true of my child

4. My child is dependable and responsible.

very true of my child	mostly true of my child	a little true of my child	not at all true of my child

5. My child is ambitious and determined.

very true of my child	mostly true of my child	a little true of my child	not at all true of my child

6. My child will work on necessary things despite boredom or distraction.

very true of my child	mostly true of my child	a little true of my child	not at all true of my child

7. My child thinks before acting.

very true of my child	mostly true of my child	a little true of my child	not at all true of my child

ref.#_____

Teacher Questionnaire

Please circle the answer that best describes the student.

1. The student procrastinates (puts off doing things).

very true of the student | mostly true of the student | a little true of the student | not at all true of the student

2. The student is efficient and self-confident.

very true of the student | mostly true of the student | a little true of the student | not at all true of the student

3. The student is organized and methodical.

very true of the student | mostly true of the student | a little true of the student | not at all true of the student

4. The student is dependable and responsible.

very true of the student | mostly true of the student | a little true of the student | not at all true of the student

5. The student is ambitious and determined.

very true of the student | mostly true of the student | a little true of the student | not at all true of the student

6. The student will work on necessary things despite boredom or distraction.

very true of the student | mostly true of the student | a little true of the student | not at all true of the student

7. The student thinks before acting.

very true of the student | mostly true of the student | a little true of the student | not at all true of the student

Consent for Participation in CCAPS Research Project

I grant permission for _____, rent or guardian, to participate in a research project in order for Nikki Osterman, who is a graduate student at Eastern Illinois University, to fulfill the requirements of the Specialist's degree. I understand that this project is under the direction of Dr. Steven Scher of the EIU Psychology Department, and has been approved by the Psychology Department ethics committee. I also understand that all student participants will be asked to complete the Children's Conscientiousness and Procrastination Scale (CCAPS), scales that measure achievement motivation , and anxiety, and approximately two months later (if time permits) will be asked to complete another CCAPS. If I wish, I may view these questionniares in the main office of my child's school. I am also aware that my student's name and responses will be kept confidential. In addition, I understand that as part of my participation in the project, I will complete a questionaire measuring procrastination and conscientiousness for my student. (This questionnaire is attached to this consent form). I also agree to allow my student's teacher to complete the same questionnaire.

_____

Signature of Parent or Guardian

_____

Date

Should you have any questions, please feel free to contact Nikki Osterman at (217) 345-7194, cgnmo@pen.eiu.edu, or Dr. Steven Scher at (217) 581-7269, cfsjs@ux1.cts.eiu.edu, Dept. of Psychology, EIU, Charleston, IL 61920.